ADEQ Arizona Department of Environmental Quality

RESOURCE SUMMARY

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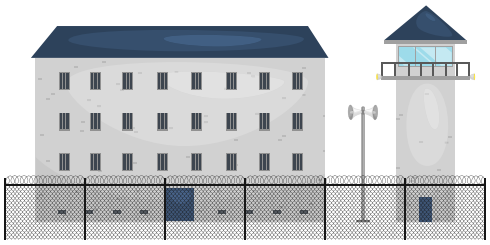
Pollution Prevention (P2) and Resource Conservation for Correctional Facilities

Arizona's prison population has reached more than 40,000 adults in custody as of January 2017[1] and requires over one billion dollars of the state's budget (about 11 percent).[2] A correctional facility functions as a small city with its own population, resource needs and waste management. Implementing pollution prevention ideas can save resources, money and time.



Waste Programs

As a correctional facility performs most of the functions required for a city to run, it incurs costs in the form of large quantities of solid waste which must be disposed of. A way to turn those costs into benefits is to start waste minimization and recycling programs at the facility, with waste minimization or source reduction as the most preferable. The Marion County Jail in Oregon used this practice to save the county over $10,000 and diverted over 5 tons of recyclables from the landfill.[3] By buying milk in bulk the jail was also able to prevent 36,400 milk cartons from entering the landfill.

Explore reduction opportunities such as recycling of aluminum cans, scrap metal, cardboard and plastics which can bring in a small revenue stream instead of costing the facility money in the form of waste pick-ups.[4]

Replace paper towels with electric hand dryers to reduce the impact of paper use and if not a viable option look to include paper towels in a recycling program.[4] Implement a clothing recovery process so that each adult in custody's clothes are repaired after wear and tear and used fully.[4]

Firing Ranges

Regulations require federal correctional facilities to file a Toxics Release Inventory (TRI) form if certain chemicals are used over a specific threshold.[5] In correctional facilities, the most common chemical that qualifies would be lead contained in firearm ammunition after being used on a firing range and released to the environment. A good option in eliminating the possibility of lead pollution of water and soil in the area is the use of lead-free ammunition which is commercially available.[6] Also, installing bullet traps can keep the ammunition from traveling too far and falling to the ground, preventing exposure and making recycling of rounds easier.[7]

A more frequent maintenance schedule for cleaning the range can decrease the amount of time lead is exposed.[4] Keep accurate inventory of ammunition in stock and use this to keep waste in check and to prevent the over stocking of ammunition.

Kitchen and Cafeteria Area

Conduct a waste audit to see what areas of the facility produce the most waste. Removing trays from cafeterias or just reducing tray and/or plate size can result in less food waste, as some studies have shown.[8] Using reusable cups in the cafeteria can replace foam cups and save on solid waste costs.[4] Reduce single serve packaging in the cafeteria, such as replacing milk cartons with a bladder dispenser.[4]

Implementing a kitchen inventory system and ordering based on the number of inmates can reduce the amount of food that is wasted due to spoilage.[8] Food donation, both to people and animals can decrease the cost burden of food waste and provide possible tax benefits to privatized correctional facilities.[8]

Composting food that goes to the garbage instead of including it in the solid waste pickup can save both money and provide a fertilizer stream. Use training and signage to encourage adults in custody and staff to separate their food and solid waste.[8]

Hazardous Chemical Usage

Chemical use is prevalent in several areas of correctional facilities such as cleaning products that are necessary to keep the facility sanitary and for use in the laundry areas as well. The best way to prevent pollution in the form of these chemicals is to switch to safer alternatives when available. When purchasing cleaning or laundry products, try to find an alternative included in EPA's Safer Choice program.[9] Furthermore, if a safe alternative is not available, make sure all inventory is used and not wasted, which can be ensured by keeping accurate inventory and providing spill prevention training to chemical handlers.

Water Conservation

Water conservation is important both in terms of reducing resource use and potentially saving money through lowered water rates and sewer charges. Conducting a water audit, usually offered by the utility company, can identify areas of the facility to focus on when implementing water conservation strategies. Implementing an education program for both staff and adults in custody can support the water reduction efforts at the facility. Some conservation

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strategies are easy to implement right away. For example, committing to replace old plumbing appliances on a set schedule as needed can start the process of conserving water .[4]

Toilets now use around three gallons less per flush than older fixtures (1.75 gpf versus 5 gpf). The average person flushes five times a day,[10] and based on the current adult in custody population as referenced on page 1, Arizona's correctional facilities use around 365 million gallons of water a year just flushing toilets. Implementing low flush toilets would save over 230 million gallons of water and a large percentage of the money dedicated to paying for water/sewer rates.

Some other water saving techniques include: faucet aerators, low flow shower heads, efficient laundry models and no-flush urinals or dual-flush systems can replace old fixtures over time. Look for products with the EPA *WaterSense* label.[11]

Xeriscaping is defined by EPA as quality landscaping that conserves water and protects the environment. More information about xeriscaping in Arizona can be found in ADEQ's *P2 with Xeriscape*.[12] Using a rain water harvest system can provide water for tasks such as washing fleet vehicles and equipment, or using it for landscape/garden irrigation.[13]

Energy Savings

To begin saving energy, a facility should conduct an energy audit either independently or with their utility company. An audit will identify opportunities for energy conservation.[4] Other techniques to conserve energy include:

- Retrofitting light fixtures with a focus on EPA Energy Star lighting and practices.[14]
- Using a solar water heating system to provide hot water for the adults in custody instead of an external natural gas or electric system.[15]
- Replacing HVAC filters and checking for leaks frequently to keep efficiencies high.[16]
- Inspecting boilers and steam systems for leaks, insulation wear, and scaling. All of these can impact performance.[16]

An unorthodox but effective way to find both the tools and the money for implementing energy conserving projects is to partner with businesses in the area. For example, the California Department of Corrections and Rehabilitations (CDCR) and a local solar power company partnered to finance and activate a 1.18 megawatt PV solar system. The corrections facility in Ironwood, Calif. now buys energy at a discounted price saving money and offsetting carbon dioxide releases.[17]

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